

Are ATM Objective-Specific Scenarios Needed?

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ATM Objectives

- Capacity → Throughput
- Economics → Access
Service Charges
- Safety → Predictability
Equipment Costs
- Environment → Flexibility
Risk Identification
Gas Emissions
- National Security → Airport Capacity
Queue Management
Noise Management
- Operability → Efficiency
Risk Monitoring
Usability
- Uniformity → Interface Standards
- Training

What are we asking...

- Are ATM objective-specific scenarios needed?
- Can the same scenario be used to meet several or all ATM objectives (e.g., “all-encompassing” scenario)?

Before we can answer...

- We need to consider
 - How are the objectives related/not related - with respect to incorporating scenario components that will address them?
 - At what stage of the Maturity Model is the concept?
 - What is the validation tool (i.e., real- or fast-time simulation)?
 - What does the sponsor/customer want?

How are the objectives related or not related?

- Can they even be addressed in the same scenario? If so, which ones?
- Can too many objectives in one scenario “spoil the broth”?
- Which ATM objectives pertain to the proposed concept?

At what stage of the Maturity Model is the concept?

- R&D Activity Concept Validation
 - V1 = Concept principle establishment
 - V2 = Initial proof of concept
 - V3 = Concept integration, Pre-ops simulations
- Do different ATM objectives apply at different validation phases?

What is the validation tool – real- or fast-time simulation?

- What resources are available (e.g., time, people, funding)?
- Would enough data be collected in an “all-encompassing” scenario to provide valuable data on each specific ATM objective?

What does the sponsor/customer want?

- Regardless of what is doable or practical, what does the sponsor want to get out of the simulation? What are his/her requirements?

One researcher's experience

- Real-time simulation perspective
- Several ATM objectives can be explored in the same scenario (e.g., capacity, safety, operability) – but this is not always an optimal or feasible approach. Why?
 - Direction from sponsor
 - Not all ATM objectives pertain to proposed concept
 - Maturity phase of concept does not require application of certain ATM objectives
 - Limited resources – cost of real-time study, small sample size, quantity and quality of data

One researcher's experience (cont'd)

- In some cases, several ATM objectives can be addressed in the same scenario
- In many cases, however, ATM objective-specific scenarios are needed
- ATM objective-specific scenarios can certainly help build other future scenarios – but they will require modification/tweaking due to different focus, changes to components as a function of time (e.g., current vs. previous traffic levels)